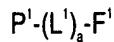


The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (original) A composition of matter of the formula



and multimers thereof, wherein:

F^1 is a vehicle and is attached at the C-terminus of $P^1-(L^1)_a$;

P^1 is a PTH/PThrP modulating domain;

L^1 is a linker; and

a is 0 or 1.

2. (original) The composition of matter of Claim 1 of the formulae



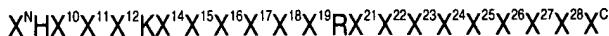
3. (original) The composition of matter of Claim 1, wherein F^1 is an Fc domain.

4. (original) The composition of matter of Claim 1 wherein F^1 is an IgG Fc domain.

5. (original) The composition of matter of Claim 1 wherein F^1 is an IgG1 Fc domain.

6. (original) The composition of matter of Claim 1 wherein F^1 comprises the sequence of SEQ ID NO: 2.

7. (original) The composition of matter of Claim 1 wherein the PTH/PThrP modulating domain is of the formula



(SEQ ID NO: 3)

wherein:

X^N is absent or is $X^3X^4X^5X^6X^7$, $X^2X^3X^4X^5X^6X^7$, $X^1X^2X^3X^4X^5X^6X^7$, or $YX^1X^2X^3X^4X^5X^6X^7$,

X^1 through X^7 , X^{10} , X^{11} , X^{12} , X^{14} through X^{28} are each independently amino acid residues;

X^C is absent or is X^{29} , $X^{29}X^{30}$, $X^{29}X^{30}X^{31}$, $X^{29}X^{30}X^{31}X^{32}$, $X^{29}X^{30}X^{31}X^{32}X^{33}$, $X^{29}X^{30}X^{31}X^{32}X^{33}X^{34}$, $X^{29}X^{30}X^{31}X^{32}X^{33}X^{34}X^{35}$, or $X^{29}X^{30}X^{31}X^{32}X^{33}X^{34}X^{35}X^{36}$;

X^{29} through X^{36} are each independently amino acid residues.

8. (original) The composition of matter of Claim 7, wherein:

X^N is $X^1X^2X^3X^4X^5X^6X^7$;

X^1 is a hydrophilic or nonfunctional residue;

X^2 is V;

X^3 is S;

X^4 is E;

X^5 is a nonfunctional or basic residue;

X⁶ is Q;
X⁷ is L;
X¹⁰ is an acidic or hydrophilic residue;
X¹¹ is a nonfunctional or basic residue;
X¹² is a nonfunctional residue;
X¹⁴ is a basic or hydrophilic residue;
X¹⁵ is a nonfunctional residue;
X¹⁶ is a nonfunctional or hydrophilic residue;
X¹⁷ is an acidic, hydrophilic, or nonfunctional residue;
X¹⁸ is a nonfunctional residue;
X¹⁹ is an acidic or basic residue;
X²¹ is a nonfunctional or basic residue;
X²² is a hydrophilic, acidic, or aromatic residue;
X²³ is an aromatic or lipophilic residue;
X²⁴ is a lipophilic residue (L preferred);
X²⁵ is a hydrophilic or basic residue;
X²⁶ is a hydrophilic or basic residue;
X²⁷ is a lipophilic, basic, or nonfunctional residue; and
X²⁸ is a lipophilic or nonfunctional residue.

9. (original) The composition of matter of Claim 8, wherein:

X^c is X²⁹X³⁰X³¹X³²X³³X³⁴;
X²⁹ is a hydrophilic or nonfunctional residue;
X³⁰ is a hydrophilic or acidic residue;
X³¹ is a lipophilic or nonfunctional residue;
X³² is H;
X³³ is a hydrophilic residue; and
X³⁴ is a nonfunctional or aromatic residue.

10. (original) The composition of matter of Claim 8, wherein:

X^c is X²⁹X³⁰X³¹;
X²⁹ is a hydrophilic or nonfunctional residue;
X³⁰ is a hydrophilic or acidic residue; and
X³¹ is a lipophilic or nonfunctional residue.

11. (original) The composition of matter of Claim 8, wherein:

X^c is X²⁹X³⁰.

- X²⁹ is a hydrophilic or nonfunctional residue; and
X³⁰ is a hydrophilic or acidic residue.
12. (original) The composition of matter of Claim 8, wherein:
X^c is X²⁹; and
X²⁹ is a hydrophilic or nonfunctional residue.
13. (original) The composition of matter of Claim 8, wherein X^c is absent.
14. (original) The composition of matter of Claim 8, wherein:
X¹ is A, S or Y;
X⁵ is H or I;
X¹⁰ is N or D;
X¹¹ is L, R, or K;
X¹² is G, F, or W;
X¹⁴ is H or S;
X¹⁵ is L or I;
X¹⁶ is Q, N, S, or A;
X¹⁷ is S, D, or L;
X¹⁸ is M, L, V or Nle;
X¹⁹ is E or R;
X²¹ is V, M, R, or Nle;
X²² is E or F;
X²³ is W or F;
X²⁵ is R or H;
X²⁶ is K or H;
X²⁷ is K or L; and
X²⁸ is L or I.
15. (original) The composition of matter of Claim 14, wherein:
X^c is X²⁹X³⁰X³¹X³²X³³X³⁴;
X²⁹ is Q or A;
X³⁰ is D or E;
X³¹ is V or I;
X³³ is N or T; and
X³⁴ is A, F or Y.
16. (original) The composition of matter of Claim 14, wherein:
X^c is X²⁹X³⁰X³¹;

- X²⁹ is Q or A;
X³⁰ is D or E; and
X³¹ is V or I;
17. (original) The composition of matter of Claim 14, wherein:
X^c is X²⁹X³⁰;
X²⁹ is Q or A; and
X³⁰ is D or E.
18. (original) The composition of matter of Claim 14, wherein:
X^c is X²⁹; and
X²⁹ is Q or A.
19. (original) The composition of matter of Claim 14, wherein X^c is absent.
20. (original) The composition of matter of Claim 1, wherein the PTH/PTHrP modulating domain is of the formula

J^NJ⁷J⁸HNJ¹¹J¹²KHLJ¹⁶SJ¹⁸J¹⁹RJ²¹EWLRKKLJ^c

(SEQ ID NO: 4)

wherein:

J^N is absent or is selected from J¹J²J³J⁴J⁵J⁶, J²J³J⁴J⁵J⁶, J³J⁴J⁵J⁶;

J¹ is an amino acid residue;

J² is an amino acid residue;

J³ is an amino acid residue;

J⁴ is an amino acid residue;

J⁵ is an amino acid residue;

J⁶ is an amino acid residue;

J⁷ is an amino acid residue;

J⁸ is an amino acid residue;

J¹¹ is a nonfunctional or basic residue;

J¹² is an amino acid residue;

J¹⁶ is an amino acid residue;

J¹⁸ is an amino acid residue;

J¹⁹ is an acidic or basic residue;

J²¹ is an amino acid residue;

J^c is absent or is J²⁹, J²⁹J³⁰, J²⁹J³⁰J³¹, J²⁹J³⁰J³¹J³², J²⁹J³⁰J³¹J³²J³³, J²⁹J³⁰J³¹J³²J³³J³⁴; and

J²⁹ is an amino acid residue;

J³⁰ is an amino acid residue;

- J³¹ is an amino acid residue;
- J³² is an amino acid residue;
- J³³ is an amino acid residue;
- J³⁴ is an amino acid residue.
21. (original) The composition of matter of Claim 20, wherein:
- J^N is J¹J²J³J⁴J⁵J⁶;
- J¹ is a nonfunctional or aromatic residue;
- J² is a nonfunctional residue;
- J³ is a hydrophilic residue;
- J⁴ is an acidic residue;
- J⁵ is a nonfunctional residue;
- J⁶ is a basic residue;
- J⁷ is a nonfunctional or aromatic residue;
- J⁸ is a nonfunctional residue;
- J¹¹ is a basic or a nonfunctional residue;
- J¹² is a nonfunctional or aromatic residue;
- J¹⁶ is a nonfunctional or hydrophilic residue;
- J¹⁸ is a nonfunctional residue;
- J¹⁹ is an acidic or basic residue; and
- J²¹ is a nonfunctional residue;
- J^C is J²⁹J³⁰J³¹J³²J³³J³⁴;
- J²⁹ is a hydrophilic or nonfunctional residue;
- J³⁰ is a hydrophilic or acidic residue;
- J³¹ is a lipophilic or nonfunctional residue;
- J³² is a basic residue;
- J³³ is an acidic residue; and
- J³⁴ is an aromatic residue.
22. (original) The composition of matter of Claim 21, wherein:
- J¹ is A, S or Y;
- J² is V;
- J³ is S;
- J⁴ is E;
- J⁵ is I;
- J⁶ is Q;

J⁷ is L or F;

J⁸ is M or Nle;

J¹¹ is L, R, or K;

J¹² is G or W;

J¹⁶ is N, S, or A;

J¹⁸ is M, Nle, L, or V;

J¹⁹ is E or R;

J²¹ is V, M, or Nle;

J²⁹ is Q or A;

J³⁰ is D or E;

J³¹ is V or I;

J³² is H;

J³³ is N; and

J³⁴ is F or Y.

23. (original) The composition of matter of Claim 20, wherein:

J^N is J¹J²J³J⁴J⁵J⁶;

J¹ is a nonfunctional or aromatic residue;

J² is a nonfunctional residue;

J³ is a hydrophilic residue;

J⁴ is an acidic residue;

J⁵ is a nonfunctional residue;

J⁶ is a basic residue;

J⁷ is a nonfunctional or aromatic residue;

J⁸ is a nonfunctional residue;

J¹¹ is a basic or a nonfunctional residue;

J¹² is a nonfunctional or aromatic residue;

J¹⁶ is a nonfunctional or hydrophilic residue;

J¹⁸ is a nonfunctional residue;

J¹⁹ is an acidic or basic residue;

J²¹ is a nonfunctional residue;

J^C is J²⁹J³⁰J³¹;

J²⁹ is a hydrophilic or nonfunctional residue;

J³⁰ is a hydrophilic or acidic residue; and

J³¹ is a lipophilic or nonfunctional residue.

24. (original) The composition of matter of Claim 23, wherein:

J^1 is A, S or Y;

J^2 is V;

J^3 is S;

J^4 is E;

J^5 is I;

J^6 is Q;

J^7 is L or F;

J^8 is M or Nle;

J^{11} is L, R, or K;

J^{12} is G or W;

J^{16} is N, S, or A;

J^{18} is M, Nle, L, or V;

J^{19} is E or R;

J^{21} is V, M, or Nle;

J^{29} is Q or A;

J^{30} is D or E; and

J^{31} is V or I.

25. (original) The composition of matter of Claim 20, wherein:

J^N is $J^1J^2J^3J^4J^5J^6$;

J^1 is a nonfunctional or aromatic residue;

J^2 is a nonfunctional residue;

J^3 is a hydrophilic residue;

J^4 is an acidic residue;

J^5 is a nonfunctional residue;

J^6 is a basic residue;

J^7 is a nonfunctional or aromatic residue;

J^8 is a nonfunctional residue;

J^{11} is a basic or a nonfunctional residue;

J^{12} is a nonfunctional or aromatic residue;

J^{16} is a nonfunctional or hydrophilic residue;

J^{18} is a nonfunctional residue;

J^{19} is an acidic or basic residue;

J^{21} is a nonfunctional residue;

- J^C is $J^{29}J^{30}$;
 J^{29} is a hydrophilic or nonfunctional residue; and
 J^{30} is a hydrophilic or acidic residue.
26. (original) The composition of matter of Claim 25, wherein:
 J^1 is A, S or Y;
 J^2 is V;
 J^3 is S;
 J^4 is E;
 J^5 is I;
 J^6 is Q;
 J^7 is L or F;
 J^8 is M or Nle;
 J^{11} is L, R, or K;
 J^{12} is G or W;
 J^{16} is N, S, or A;
 J^{18} is M, Nle, L, or V;
 J^{19} is E or R;
 J^{21} is V, M, or Nle;
 J^{29} is Q or A; and
 J^{30} is D or E.
27. (original) The composition of matter of Claim 20, wherein:
 J^N is $J^1J^2J^3J^4J^5J^6$;
 J^1 is a nonfunctional or aromatic residue;
 J^2 is a nonfunctional residue;
 J^3 is a hydrophilic residue;
 J^4 is an acidic residue;
 J^5 is a nonfunctional residue;
 J^6 is a basic residue;
-
- J^7 is a nonfunctional or aromatic residue;
 J^8 is a nonfunctional residue;
 J^{11} is a basic or a nonfunctional residue;
 J^{12} is a nonfunctional or aromatic residue;
 J^{16} is a nonfunctional or hydrophilic residue;
 J^{18} is a nonfunctional residue;

- J¹⁹ is an acidic or basic residue;
- J²¹ is a nonfunctional residue;
- J^c is J²⁹; and
- J²⁹ is a hydrophilic or nonfunctional residue.
28. (original) The composition of matter of Claim 27, wherein:
- J¹ is A, S or Y;
- J² is V;
- J³ is S;
- J⁴ is E;
- J⁵ is I;
- J⁶ is Q;
- J⁷ is L or F;
- J⁸ is M or Nle;
- J¹¹ is L, R, or K;
- J¹² is G or W;
- J¹⁶ is N, S, or A;
- J¹⁸ is M, Nle, L, or V;
- J¹⁹ is E or R;
- J²¹ is V, M, or Nle; and
- J²⁹ is Q or A.
29. (original) The composition of matter of Claim 20, wherein:
- J^N is J¹J²J³J⁴J⁵J⁶;
- J¹ is a nonfunctional or aromatic residue;
- J² is a nonfunctional residue;
- J³ is a hydrophilic residue;
- J⁴ is an acidic residue;
- J⁵ is a nonfunctional residue;
- J⁶ is a basic residue;
-
- J⁷ is a nonfunctional or aromatic residue;
- J⁸ is a nonfunctional residue;
- J¹¹ is a basic or a nonfunctional residue;
- J¹² is a nonfunctional or aromatic residue;
- J¹⁶ is a nonfunctional or hydrophilic residue;
- J¹⁸ is a nonfunctional residue;

J¹⁹ is an acidic or basic residue;

J²¹ is a nonfunctional residue; and

J^C is absent.

30. (original) The composition of matter of Claim 29, wherein:

J¹ is A, S or Y;

J² is V;

J³ is S;

J⁴ is E;

J⁵ is I;

J⁶ is Q;

J⁷ is L or F;

J⁸ is M or Nle;

J¹¹ is L, R, or K;

J¹² is G or W;

J¹⁶ is N, S, or A;

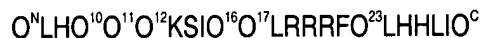
J¹⁸ is M, Nle, L, or V;

J¹⁹ is E or R; and

J²¹ is V, M, or Nle.

31. (currently amended) The composition of matter of Claim 20, wherein the PTH/PTHrP modulating domain is selected from Table 1 any one of SEQ ID NO:10 to SEQ ID NO:61 inclusive.

32. (original) The composition of matter of Claim 1 wherein the PTH/PTHrP modulating domain is of the formula



(SEQ ID NO: 5)

wherein:

O^N is absent or is YO¹O²O³O⁴O⁵O⁶O⁷, O¹O²O³O⁴O⁵O⁶O⁷, O²O³O⁴O⁵O⁶O⁷, O³O⁴O⁵O⁶O⁷, O⁴O⁵O⁶O⁷, O⁵O⁶O⁷,

O⁶O⁷, or O⁷;

O¹ is an amino acid residue;

O² is an amino acid residue;

O³ is an amino acid residue;

O⁴ is an amino acid residue;

O⁵ is an amino acid residue;

- O^6 is an amino acid residue;
 O^7 is an amino acid residue;
 O^{10} is an amino acid residue;
 O^{11} is an amino acid residue;
 O^{12} is an amino acid residue;
 O^{16} is an amino acid residue;
 O^{17} is an amino acid residue;
 O^{23} is an amino acid residue;
- O^c is absent or is $O^{29}, O^{29}O^{30}, O^{29}O^{30}O^{31}, O^{29}O^{30}O^{31}O^{32}, O^{29}O^{30}O^{31}O^{32}O^{33}, O^{29}O^{30}O^{31}O^{32}O^{33}O^{34}, O^{29}O^{30}O^{31}O^{32}O^{33}O^{34}O^{35},$ or $O^{29}O^{30}O^{31}O^{32}O^{33}O^{34}O^{35}O^{36}$, and
 O^{29} through O^{36} are each independently amino acid residues.
33. (original) The composition of matter of Claim 27, wherein:
- O^N is O^7 ;
 O^7 is a nonfunctional residue;
 O^{10} is an acidic or hydrophilic residue;
 O^{11} is a basic or nonfunctional residue;
 O^{12} is an aromatic or nonfunctional residue;
 O^{15} is a hydrophilic or nonfunctional residue;
 O^{16} is a hydrophilic residue;
 O^{17} is an acidic or nonfunctional residue;
 O^{23} is an aromatic residue; and
 O^c is absent.
34. (original) The composition of matter of Claim 23, wherein:
- O^N is $O^1O^2O^3O^4O^5O^6O^7$;
 O^1 is a nonfunctional amino acid residue;
 O^2 is a nonfunctional amino acid residue;
 O^3 is a hydrophilic amino acid residue;
 O^4 is an acidic amino acid residue;
 O^5 is a basic or nonfunctional amino acid residue;
 O^6 is a hydrophilic amino acid residue;
-
- O^7 is a nonfunctional residue;
 O^{10} is an acidic or hydrophilic residue;
 O^{11} is a basic or nonfunctional residue;
 O^{12} is an aromatic or nonfunctional residue;

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- O^{15} is a hydrophilic or nonfunctional residue;
- O^{16} is a hydrophilic residue; and
- O^{17} is an acidic or nonfunctional residue; and
- O^{23} is an aromatic residue.
35. (original) The composition of matter of Claim 34, wherein:
- O^1 is A;
- O^2 is V;
- O^3 is S;
- O^4 is E;
- O^5 is H or I;
- O^6 is Q;
- O^7 is L;
- O^{10} is N or D;
- O^{11} is K or L;
- O^{12} is G, F, or W;
- O^{15} is I or S;
- O^{16} is Q or N;
- O^{17} is D or L;
- O^{23} is F or W.
36. (currently amended) The composition of matter of Claim 27, wherein the PTH/PTHrP modulating domain is selected from Table 2 any one of SEQ ID NO:62 to SEQ ID NO:159 inclusive.
37. (original) The composition of matter of Claim 1, wherein the PTH/PTHrP modulating domain has the amino acid sequence of TIP39.
38. (currently amended) The composition of matter of Claim 1, comprising a sequence selected from Table 4 any one of SEQ ID NO:161 to SEQ ID NO:170 inclusive.
-
39. - 79 (cancelled)

Amendments to the Drawings:

In response to the objections to the drawings applicants herewith submit replacement sheets of formal drawings, Figures 1 through 12.